

REMARKS

The drawings are objected to as failing to show every feature of the claimed invention. In particular, the drawings, according to the office action fail to show the various effective material usage factors and the various square meters of material as claimed in claims 1-5 and 8-14. Claims 1-5 and 8-14 have been canceled thus overcoming this rejection. New claims 131-150 do not claim the effective material usage factors or square meters of material.

In addition, Figs. 6, 7, 32-36, 39 and 40 have been revised to delete the numbers along the side of the fabric layouts shown.

The specification is objected to as failing to provide antecedent basis for the claimed subject matter of claims 1-12. These claims are canceled and the subject matter of new claims 132-150 is fully supported in the specification.

The specification has also been amended at page 9 and 16 to incorporate the word "concave" from the original claims (claim 17) into the balance of the specification.

Claims 1-14 stand rejected under 35 USC §112, first paragraph as failing to comply with the written description requirement. These claims have been canceled thus mooting this rejection.

Claims 1-7, 15-20, and 67 stand rejected under 35 USC §102(b) as anticipated by Sakai et al (JP 409188218). Claims 1-7, 17-19 and 67 have been canceled. The limitations of canceled claim 17 have been incorporated into claim 15 along with other amendments, and, accordingly, in view of these amendments, this rejection is respectfully traversed. Sakai et al does not teach a

two-chambered airbag with tethers close to the central portion of the second panel and having a concave area in the second panel, below the third panel, when the airbag cushion is inflated, as claimed by Applicant.

Claims 67 and 116 stand rejected under 35 USC §102(b) as anticipated by Nishijima et al (GB 2 334 492). These claims have also been canceled thus mooted this rejection.

Claims 8-14 and 128-130 stand rejected under 35 USC 103(a) as being unpatentable over Sakai et al. These claims have also been canceled and the rejection of them is also moot.

Claim 15 has been amended to incorporate the limitation of claim 17. Claims 16 and 20 have been amended to correct a minor error and change a dependency from now-canceled claim 17 to now-amended claim 15.

New claim 131 depends from amended claim 15.

New claim 132 is similar to claim 15 except that it is not in Jepson format. Claims 133-150 depend from claim 132 and incorporate limitations in various canceled claims.

None of the prior art cited is directed to an airbag cushion with at least two chambers, and having tethers that cause the center of the second panel to be concave.

The importance of the use of shortened tethers in the two-chamber airbag to form the concave center of the second panel is stressed in the present application:

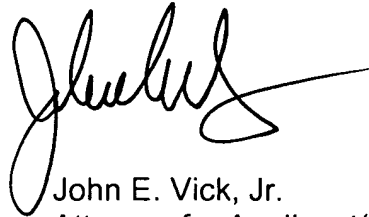
Inflation tests showed that due to the shortened tether, the primary chamber of the two-chamber airbag inflated much faster with a much shorter maximum excursion length than the single chamber airbag, again providing protection for an out of position occupant sitting close to the airbag. [See page 12, lines 3-6]

In view of the foregoing remarks, Applicant believes that the present application is in condition for allowance. An early and favorable action to that respect is earnestly solicited.

Should any matter of form or language stand in the way of allowance of the present application, the undersigned respectfully requests a telephone conference to resolve such issues.

The Commissioner is hereby authorized to charge any fees as may be required for timely acceptance of the Amendment transmitted herewith and/or to credit any surplus to Deposit Account No. 04-0500. A duplicate copy of this sheet is enclosed.

Respectfully requested,



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ATTACHMENT B

CHANGES TO THE SPECIFICATION OF APPLICATION SERIAL NUMBER

09/900,838 EXPLICITLY SHOWING THE AMENDMENTS TO CLAIMS

← PARAGRAPH BEGINNING AT PAGE 9, LINE 19:

21 At least one embodiment of the two-chamber airbag disclosed herein is based on the current single-chamber airbag design but with several novel modifications to provide much improved safety and/or performance. The current single chamber airbag can be modified and used as the primary chamber of the two-chamber airbag. In one embodiment, a piece of fabric of appropriate size is sewn to the outside surface of the front panel of the primary chamber to create the secondary chamber. One or more apertures are opened between the primary and secondary chambers. In order for the secondary chamber to inflate properly, the tethers of the primary chamber are preferably shortened to 50% to 80% of their original length. The size of the tether sewing to the inner surface of the front panel of the primary chamber is also adjusted to create a desired concave shape of the secondary chamber when deployed.

PARAGRAPH BEGINNING AT PAGE 16, LINE 23:

B2
At least one embodiment of the two-chamber airbag disclosed herein is based on the current single-chamber airbag design but with several novel modifications to provide much improved safety and performance (**FIGS. 2, 3, and 5**). The current single chamber airbag can be modified to be used as the primary chamber of the two-chamber airbag. A piece of fabric 22 of appropriate size is sewn to the outside (or inside) surface of the front panel 24 of the primary chamber to create the secondary chamber. One or more apertures 26 are opened between the primary and secondary chambers. In order for the secondary chamber to inflate properly, the tethers 28 of the primary chamber are preferably shortened to 50% to 80% of their original length. The size of the tether sewing to the inner surface of the front panel of the primary chamber is also adjusted to create a desired concave shape of the secondary chamber when deployed. Rear panel 30 of the primary chamber includes vent openings 32 and a gas inlet.

ATTACHMENT C
CLAIMS OF APPLICATION SERIAL NUMBER 09/900,838 SHOWING STATUS
OF EACH CLAIM AND THE AMENDMENTS TO CLAIMS

Claims 1-14, 17-19, 21-31, 32-44, 45-55, 56-66, 67-73, 74-79, 80-92, 93-104, 105-115, 116-126, 127-130 are canceled. Claims 131-150 are new.

B3 15. (Amended) In an airbag cushion filled by gas during inflation, having at least first and second panels connected by edge seams and forming a primary chamber, the improvement comprising a secondary chamber being formed by an additional panel attached to a central portion of the second panel, and at least one vent hole in ~~one of the second panel and additional panel~~ to provide for gas to fill the secondary chamber after the filling of the primary chamber during inflation, and tethers extending between said first and second panels, located near the center of said second panel, and forming a concave area in said second panel, below said third panel, when the airbag cushion is inflated.

16. (Amended) The airbag cushion as recited in claim 15, wherein the third panel is attached over at least a central portion of the outer surface of the second panel, and at least one vent hole is formed in the second panel in a position located under said third panel.

B4 20. (Amended) The airbag cushion as recited in claim [17] 15, wherein all of said panels and said tethers are at least one of coated and uncoated fabric.

131. (New) The airbag cushion as recited in Claim 15, wherein said secondary chamber has a smaller volume than said primary chamber.

B5 132. (New) An airbag cushion, comprising:
a first panel;
a second panel connected by edge seams to said first panel to form a primary chamber, said second panel having a central portion;
a third panel connected by edge seams to said second panel to form a secondary chamber, said third panel connected to said central portion of said second panel,
said second panel having at least one vent hole formed therein to provide for gas to fill said secondary chamber after said primary chamber during inflation of said airbag cushion; and
at least one tether extending between said first and second panels, located near said central portion of said second panel, and forming a concave area in said second panel, below said third panel, when the airbag cushion is inflated.

133. (New) The airbag cushion as recited in Claim 132, wherein said third panel has smaller dimensions than said second panel.

134. (New) The airbag cushion as recited in Claim 132, wherein said second panel has at least two vent holes formed therein.

135. (New) The airbag cushion as recited in Claim 132, wherein said at least one tether defines a first chamber and a second chamber within said primary chamber, said first chamber receiving gas through a gas opening in said first panel and venting to a second chamber within said primary chamber.

136. (New) The airbag cushion as recited in Claim 132, wherein said at least one vent opening in said second panel is located adjacent to said at least one tether.

137. (New) The airbag cushion as recited in Claim 132, wherein the length of said at least one tether is selected to form a concave area in the center of the face of said second panel upon inflation of the airbag cushion.

138. (New) The airbag cushion as recited in Claim 132, wherein said at least one tether is sewn to said first and second panels.

139. (New) The airbag cushion as recited in Claim 132, wherein said at least one tether is attached to said second panel by a circular stitching.

140. (New) The airbag cushion as recited in Claim 132, further comprising a fourth panel secured to said second panel over said third panel, and wherein said third panel includes a vent opening providing for inflation of a tertiary chamber formed between said fourth panel and said second and third panels.

141. (New) The airbag cushion as recited in Claim 144, wherein said fourth panel is larger than said third panel.

142. (New) The airbag as recited in claim 132, wherein said at least one tether is a first and a second tether, said first and said second tethers being woven, and said first tether being cut at a 45° bias to the warp and fill and said second tether is cut at 90° bias to the warp and fill.

143. (New) The airbag cushion as recited in Claim 132, wherein said at least one tether is formed of at least two parts, each part of said two parts being joined to another of said two parts.

144. (New) The airbag cushion as recited in claim 146, wherein said two parts of said at least one tether are joined together midway between said first and said second panels.

145. (New) The airbag cushion as recited in Claim 132, wherein said vent hole vents gas from said primary chamber into said secondary chamber upon inflation of said airbag cushion.

146. (New) The airbag cushion of Claim 132, wherein said at least one vent hole in said second panel is dimensioned to provide for a fill rate of said secondary chamber of less than that of the primary chamber.

147. (New) The airbag cushion of Claim 132, wherein the fill volume ratio of said secondary chamber to said primary chamber is at most 2/3.

148. (New) The airbag cushion of Claim 132, wherein the fill volume ratio of said secondary chamber to said primary chamber is at most 1/3.

149. (New) The airbag cushion of Claim 132, wherein said second panel is made of uncoated fabric and said first and said third panels are made of coated fabric.

150. (New) The airbag cushion of claim 132, wherein said at least one tether has a vent hole, said vent hole of said at least one tether being offset from said at least one vent hole of said second panel.

151. (New) The airbag cushion of claim 149, wherein said at least one vent hole of said tether and said at least one vent hole of said second panel are slits.

152. (New) The airbag cushion of claim 132, wherein said at least one tether has an enlarged substantially elongated oval central region attached to said first and second panels.